Before the
Federal Communications Commission
Washington, D.C.

In the matter of:

Revitalization of the AM Radio Service	**)**	
	)	**MB Docket No. 13-249**
Second Further Notice of Proposed	**)**	
Rulemaking	**)**	

COMMENTS OF DU TREIL, LUNDIN & RACKLEY, INC.

The engineering consulting firm of du Treil, Lundin & Rackley, Inc. ("dLR") hereby submits these comments in response to the Commission's Second Further Notice of Proposed Rulemaking ("2nd FNPRM") that was issued in the above-captioned proceeding on October 5, 2018. In the Notice, the Commission solicited comments on its various specific proposals that are listed topically herein.

We have reviewed the 2nd FNPRM and we strongly support the Commission's goal of revitalizing the AM radio service that is evident in it. Based on experience from the 77 year history of providing engineering consulting services to the licensees of AM radio stations of our firm and its direct predecessors, we intend with these comments to provide focused analysis of the Commission's specific proposals related to AM transmission standards and other matters related to licensing of AM stations which we believe to be very important for AM revitalization.

We believe that the Commission has proposed rules in the 2nd FNPRM that were developed with fair and comprehensive consideration of the record in the proceeding and on a solid foundation of engineering facts. We intend to follow up in that vein with these

comments with a "big picture" focus on what is best for the public and the AM radio service in view.

Except where noted herein, we agree with all of the rule changes that are specifically proposed by the FCC in the 2nd FNPRM for the reasons that were provided in our Comments[1] and Reply Comments[2] in the original proceeding and our subsequent Comments[3] and Reply Comments[4] following the Further Notice of Proposed Rulemaking. We include these previous comments by reference. Additional information that we believe may have decisional significance is presented in these Comments, also.

FCC Proposal A. – Change Nighttime and Critical Hours Protection to Class A AM Stations

With regard to critical hours protection, we recommend Alternative 2 of the 2nd FNPRM. It will be appropriate to continue protection for the large outlying daytime groundwave coverage areas of Class A stations from daytime transitional skywave interference during critical hours at their 0.5 mV/m contour levels. We recommend, for simplified analysis and FCC application cost reduction, that the calculations be done on a site-to-site basis. The permissible field levels to provide protection can be scaled by a factor of 5.0 applied to the values that are provided in the tables of 47 CFR 73.187 for protection to the 0.1 mV/m level under the present rules.

With regard to nighttime protection, we recommend Alternative 1 of the 2nd FNPRM. As noted in our previous Comments, calculations show that Class A stations in the United States have nighttime interference-free levels, when calculated on a site-to-site basis using the standards that have been proposed by the FCC in this proceeding for other stations, that average 1.5 mV/m – and that no Class A station in the 48 contiguous states has an interference-free level below 0.5 mV/m. We believe that providing nighttime

[1] "Comments of du Treil, Lundin & Rackley, Inc., MB Docket No. 13-249," January 13, 2014.
[2] "Reply Comments of du Treil, Lundin & Rackley, Inc., MB Docket No. 13-249," March 4, 2014.
[3] "Comments of du Treil, Lundin & Rackley, Inc., MB Docket No. 13-249," March 21, 2016.
[4] "Reply Comments of du Treil, Lundin & Rackley, Inc., MB Docket No. 13-249," April 14, 2016.

protection to Class A station groundwave service at the 0.5 mV/m level will represent protection to a level that is greater than is the case for other classes of station and preserve for each the ability to provide "…service over an extended area and at relatively long distances from its transmitter…" as defined for Class A stations in 47 CFR 73.21(a)(1) . We recommend, for simplified analysis and FCC application cost reduction, that the calculations be done on a site-to-site basis.

The proposed changes of Alternative 1 will provide an economic benefit to many Class B AM stations, as well as providing expanded service to the listening public, by allowing expansion of their nighttime groundwave coverage areas without any corresponding increases in the nighttime interference free contour levels of the Class A stations with which they share their frequencies. Two Class B stations have been selected to serve as examples of such improvement possibilities. Figures 1 and 2 show the improved coverage that would be possible for stations KTNQ in Los Angeles, California and KRDC in Pasadena, California under the Alternative 1 plan. The licensed nighttime directional antenna patterns of both stations will be able to be modified by readjustment to alternative parameters if "Alternative 1" is adopted in the rules. Such changes should be possible at many other stations, also.

Adoption of the Alternative 1 plan would make it possible for Class A stations that operate with directional antennas that protect other Class A stations at night to make improvements in their nighttime coverage areas. As an example, Figure 3 shows the degree to which the requirement to protect WOR in New York in the present rules restricts the groundwave coverage of radio station KIRO on 710 kilohertz in Seattle, Washington. Assuming that it is possible to eliminate the required protection of certain Class B stations that operate a night, such as is possible through interference reduction agreements, the existing KIRO directional antenna pattern could be readjusted to provide the improved coverage shown on the map. Similar improvements would no doubt be possible for many other Class A stations that broadcast with directional antennas to protect other Class A stations at night.

Under previous rules that are no longer in effect, several pairs of Class A stations were able to improve their groundwave coverage by agreeing to mutually modify their nighttime directional antenna patterns to let out their nulls while accepting a certain degree of "on paper" interference from each other. KAAY in Little Rock, Arkansas and WBAL in Baltimore, Maryland, on 1090 kilohertz, and KSTP in St. Paul, Minnesota and WFED in Washington, DC, on 1500 kilohertz, are two examples of such mutually agreed-upon improvements that were made in the past. Alternative 1 will open the door for such improvements by other stations once again.

Effects of Proposed Class A AM Station Protection Standards on EAS and IPAWS Systems

The proposed protection standards will preserve the ability of Class A stations to provide wide-area emergency service to the American public. The FEMA-administered IPAWS system provides emergency alert information through the Emergency Alert System (EAS) over radio and television stations, over cellular phones via Wireless Emergency Alerts (WEA), over NOAA's National Weather Radio (NWR), and over the Internet via the IPAWS All-Hazards Information Feed. Under the proposed protection standards, Class A AM radio stations will continue to provide one of the many potential means for the public to receive alert information during the transmission of normal programming, while other AM stations will be able to provide service to larger areas than is presently the case.

Class A stations' ability to provide wide-area dissemination of emergency information if other means of transmission become inoperable will not be diminished. The proposed standards will not reduce the facilities with which Class A stations transmit. A mechanism is in place under federal law that guarantees that they will have exclusive use of their frequencies if such service is ever required of them:

47 U.S.C. Section 606, WAR POWERS OF PRESIDENT

"(c) Upon proclamation by the President that there exists war or a threat of war, or a state of public peril or disaster or other national emergency, or in order to preserve the neutrality of the United States, the President, if he deems it necessary in the interest of national security or defense, may suspend or amend, for such time as he may see fit, the rules and regulations applicable to any or all stations or devices capable of emitting electromagnetic radiations within the jurisdiction of the United States as prescribed by the Commission, and may cause the closing of any station for radio communication, or any device capable of emitting electromagnetic radiations between 10 kilocycles and 100,000 megacycles, which is suitable for use as a navigational aid beyond five miles, and the removal therefrom of its apparatus and equipment, or he may authorize the use or control of any such station or device and/or its apparatus and equipment, by any department of the Government under such regulations as he may prescribe upon Communications Act of 1934 324 just compensation to the owners. The authority granted to the President, under this subsection, to cause the closing of any station or device and the removal therefrom of its apparatus and equipment, or to authorize the use or control of any station or device and/or its apparatus and equipment, may be exercised in the Canal Zone."

FCC Proposal B. - Change Nighttime RSS Calculation Methodology; Change Daytime Protection to Class B, C and D Stations

We agree with the proposed changes in the rules regarding nighttime RSS calculations for the reasons that were given in our previous comments. We recommend, for simplified analysis and FCC application cost reduction, that the calculations be done on a site-to-site basis.

We agree with the concept of the proposed changes to the daytime protection requirements, with one refinement. We recommend a simultaneous change in the interfering contour definition by 6 dB to balance with the 12 dB change in the defined

service contour from 0.5 mV/m to 2.0 mV/m. Under our suggested plan, the co-channel interfering contour would be at the 0.05 mV/m level, and the adjacent channel interfering contour at the 1.0 mV/m level, to protect the 2.0 mV/m contour as the defined service area. We believe that this plan represents a good compromise to limit station-to-station interference while improving the signal-to-noise ratio through increasing the protected contour level.

To illustrate the allocation factors that impact the ability of an AM station to move and/or increase power, where it and other nearby cochannel and adjacent-channel stations operate with nondirectional antennas or directional antennas not having deep nulls, radio Station WGGH in Marion, Illinois was randomly selected for detailed study. WGGH operates on 1150 kilohertz with power of 5,000 watts and a directional antenna. Figure 4A is a map showing the daytime allocation situation under the present rules for WGGH. Also shown are cochannel stations KCPS, Burlington, Iowa, which operates with 500 watts and a directional antenna, and WDTM, Selmer, Tennessee, which operates with 1,000 watts and a nondirectional antenna. First-adjacent channel stations KPWB, Piedmont, Missouri, which operates on 1140 kilohertz with 1,000 watts and a nondirectional antenna, and WKCM, Hawesville, Kentucky, which operates on 1160 kilohertz with 2,500 watts and a nondirectional antenna, are also shown. The signal contours of the stations were all calculated using ground conductivities from the FCC's M-3 map.

Because of the grandfathered overlap and tangentially-touching contours that are evident on Figure 4A, all of the stations are essentially in "straight jackets" that prevent them from improving their signals. Additionally, the options for relocating their transmitter sites are severely restricted. Power reduction and/or the construction of directional antennas with greater suppression can be necessary, because of the requirement to avoid increasing existing overlap, if any of them must move.

Figure 5A is a similar study where some of the stations have more highly suppressed directional antennas than those shown on Figure 4A, showing the daytime allocation

situation under the present rules for radio Station WCSM in Celina, Ohio. WCSM operates on 1350 kilohertz with power of 500 watts and a directional antenna. Also shown are cochannel stations WARF, Akron, Ohio, which operates with 5,000 watts and a directional antenna, and WCHI, Chillacothe, Ohio, which operates with 1,000 watts and a nondirectional antenna. First-adjacent channel stations WIZE, Springfield, Ohio, which operates on 1340 kilohertz with 1,000 watts and a nondirectional antenna, and WSAI, Cincinnati, Ohio, which operates on 1360 kilohertz with 5,000 watts and a nondirectional antenna, are also shown.

The studies of Figures 4A and 5A typify the state of affairs for AM stations with regard to daytime allocations all over the country. They are prevented from making signal improvements, or choosing good new transmitter sites when they must relocate, because of continuing reliance on standards that were adopted over 80 years ago under very different noise conditions – compounded by the ill-advised, arbitrary 6 dB change in the first-adjacent protection requirement that was adopted in 1991, with Utopian assumptions for receiver technology, that has since proven to be a big mistake.

Although there would be an infinite number of combinations of changes to analyze the improvement possibilities for the stations of Figures 4A and 5A with a change in the rules, we have chosen the expedient of analyzing them all together to determine what power increases would be possible across-the-board for each scenario. Figures 4B and 5B represent our proposal for 0.05 mV/m cochannel and 1.0 mV/m first-adjacent channel protection of the stations 2.0 mV/m contours. Figures 4C and 5C represent the protection standards of the 2nd FNPRM.

We believe it is evident that our proposed standards will significantly improve the regulatory environment for stations wishing to optimize their coverage and/or choose more optimal transmitter sites when they are forced to move. They will do this with a 6 dB improvement in the service/interference tradeoff of the 2nd FNPRM proposed standards. We believe that we are proposing a good compromise between doing nothing

to avoid increasing inter-station interference and changing the protected contour level to allow stations on the whole to better overcome noise and man-made interference.

Conclusion

We believe that AM radio stations can be relied upon to provide needed service well into the future, but that new allocation standards are needed to provide them with the flexibility they need to provide optimal service in the modern noise environment and to meet competition from the ever-increasing number of alternative audio programming delivery systems they face. We believe the proposed rules, with our recommended modifications, represent a good balance of measures for reducing the effects of noise and man-made interference and managing inter-station signal interference both day and night. They represent a pro-service approach that will make it possible for AM stations to make changes that overcome interference and provide better coverage to their audiences.

Appeal for Expedited Action

Over five years have passed since the effort to make rule changes to revitalize service in the AM band began in 2013. With every year, the difficulty with which AM radio stations must address siting and coverage issues has increased – in large part because the land values of existing transmitter sites militate in favor of their relocation. New engineering standards to increase AM stations' flexibility in site selection, with the ability to provide signals that better overcome noise and man-made interference, are very much needed – NOW.

A complete set of comments and reply comments prepared by numerous experienced engineering experts has been placed on the record in this rulemaking. The comments have been extensively analyzed by the FCC's engineering and legal experts, who used the information to develop the proposed rules that are now under consideration. We believe that the compromise position we have taken with regard to the daytime groundwave protection requirements for class B, C and D stations, which is the only exception we

take to the proposed rules, fairly addresses concerns that have been raised with regard to interstation interference when the protected contour level is raised to 2.0 mV/m. We believe that this rulemaking should move forward to its conclusion without delay, and we encourage the FCC to make that happen.

Respectfully Submitted,

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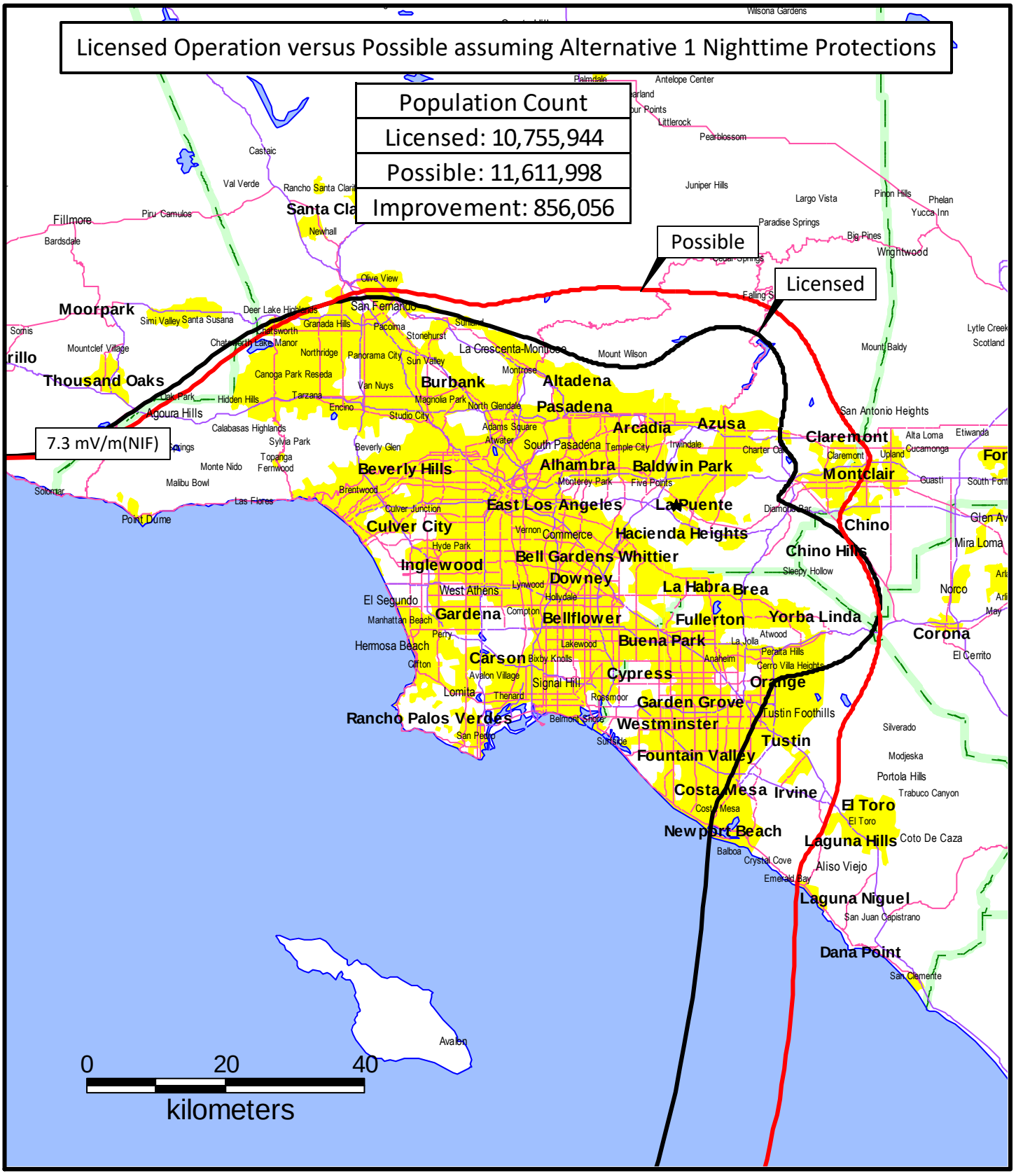
Ronald D. Rackley, P.E.

January 2, 2019

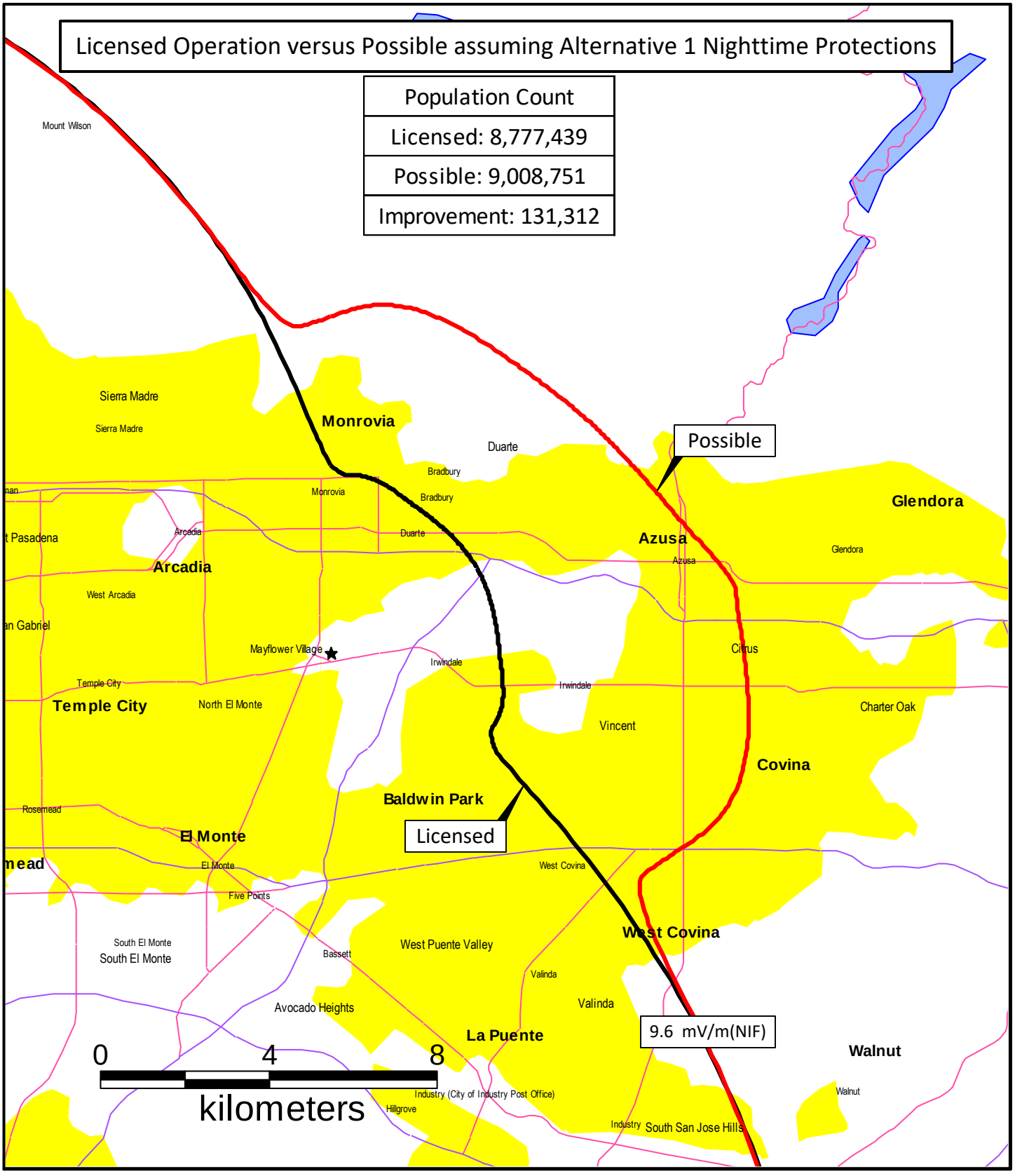
Figure 1



PREDICTED NIGHTTIME COVERAGE CONTOURS

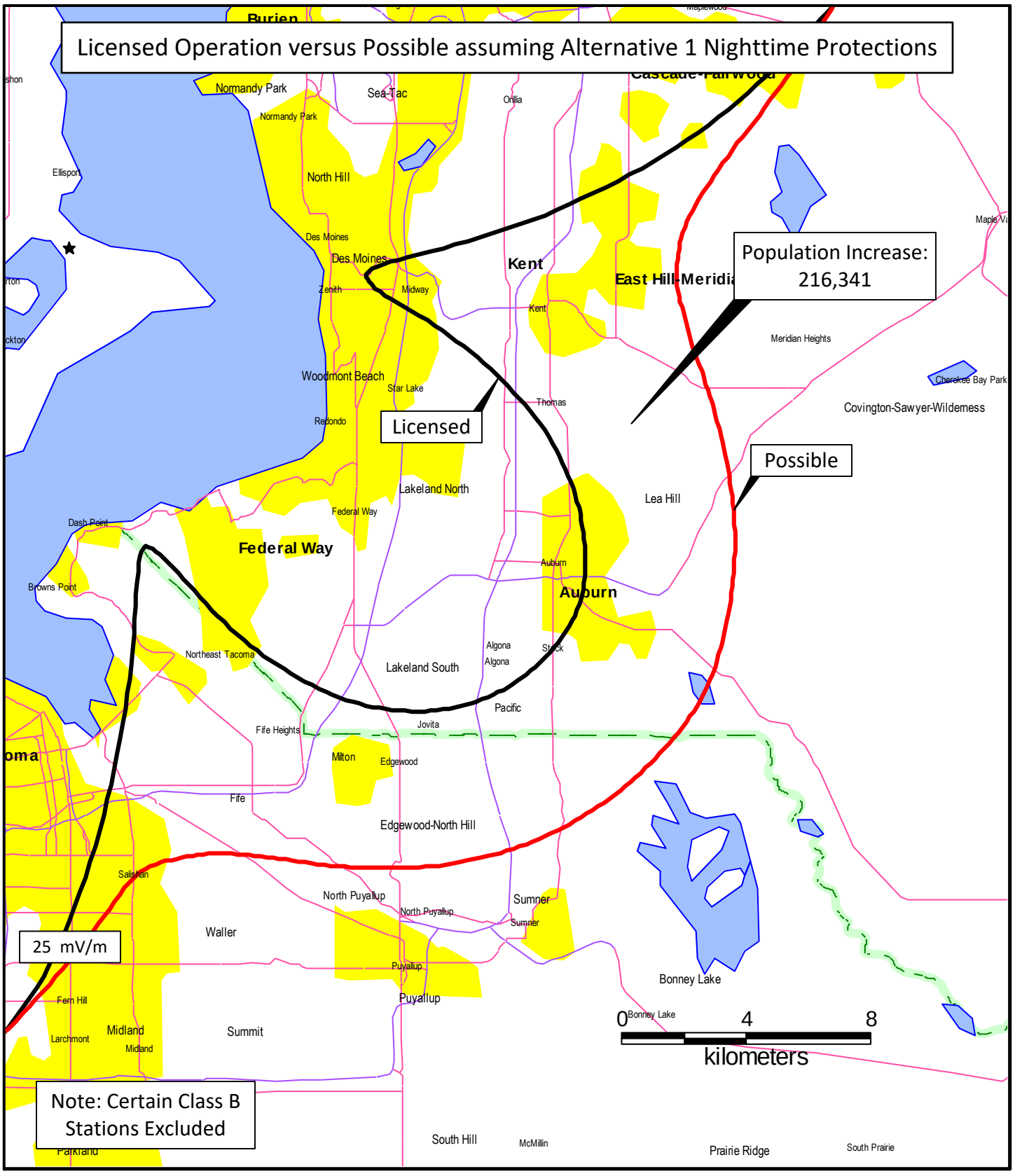
RADIO STATION KTNQ
LOS ANGELES, CALIFORNIA
1020 KHZ 50 KW U DA-2

du Treil, Lundin & Rackley, Inc. Sarasota, Florida



PREDICTED NIGHTTIME COVERAGE CONTOURS

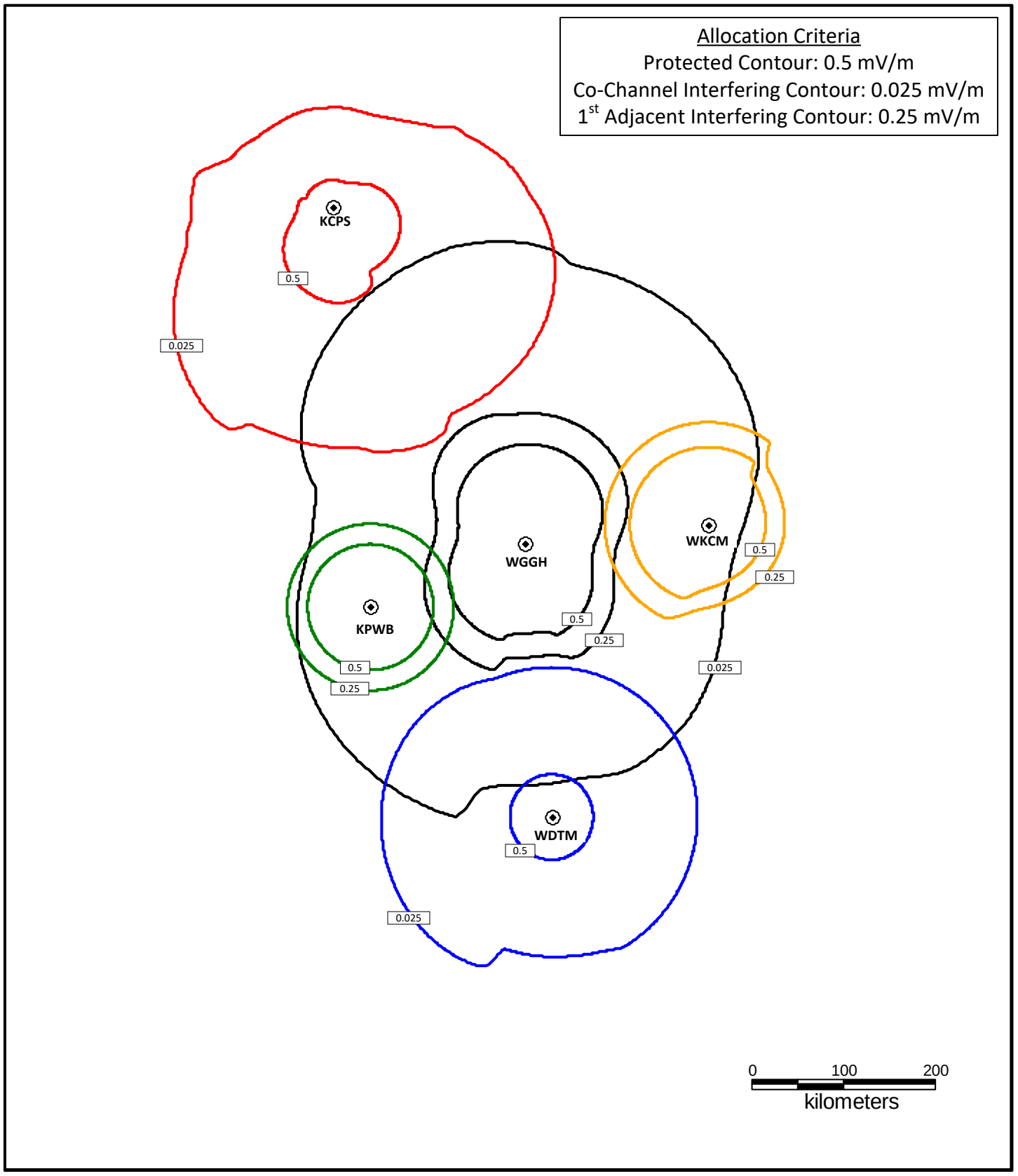
RADIO STATION KRDC
PASADENA, CALIFORNIA
1110 KHZ 50 KW-D 20 KW-N U DA-2



PREDICTED NIGHTTIME COVERAGE CONTOURS

RADIO STATION KIRO
SEATTLE, WASHINGTON
710 KHZ 50 KW U DA-N

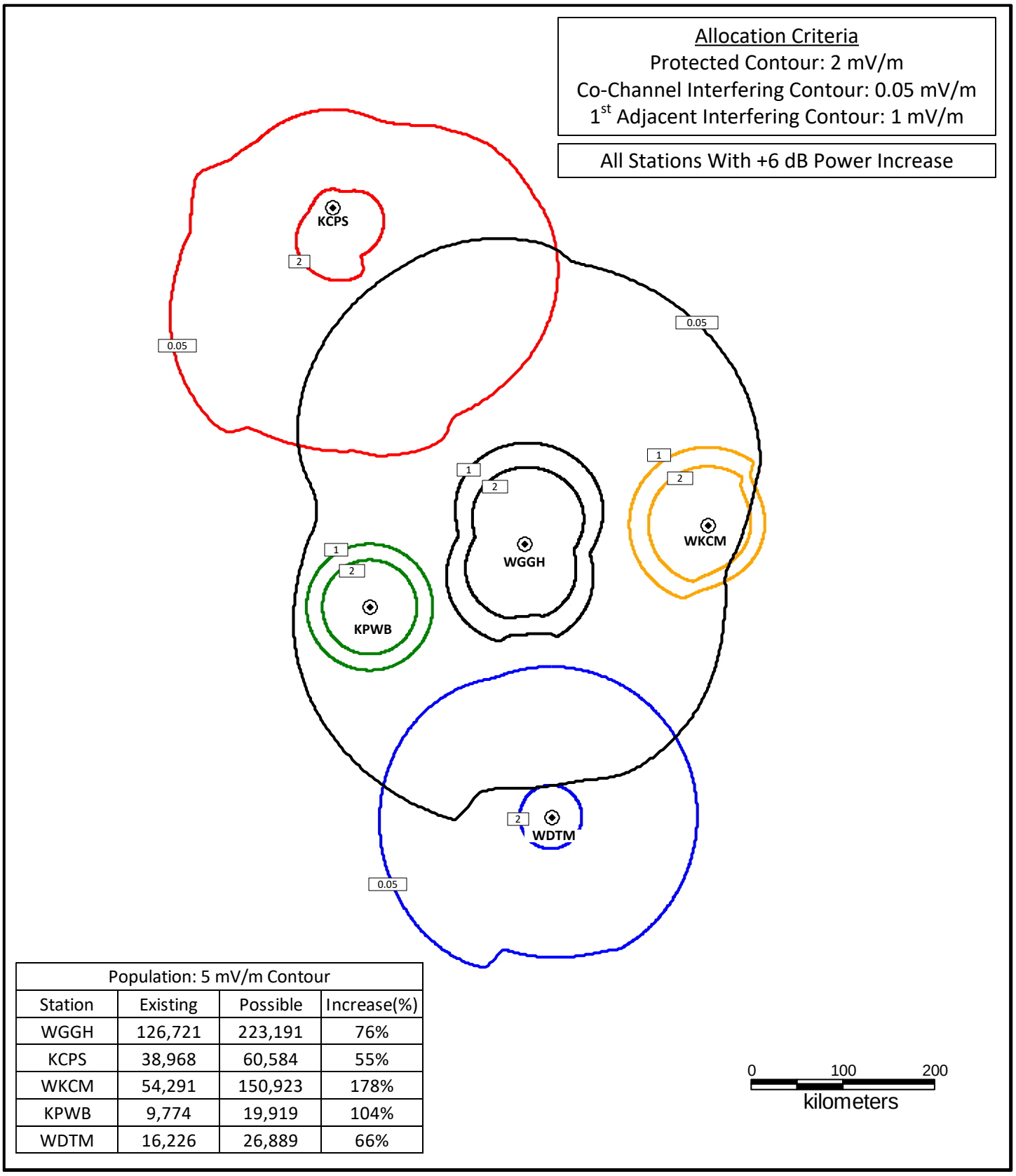
du Treil, Lundin & Rackley, Inc. Sarasota, Florida



DAYTIME ALLOCATION STUDY

Existing Allocation Criteria
1150 kHz Example

du Treil, Lundin & Rackley, Inc. Sarasota, Florida

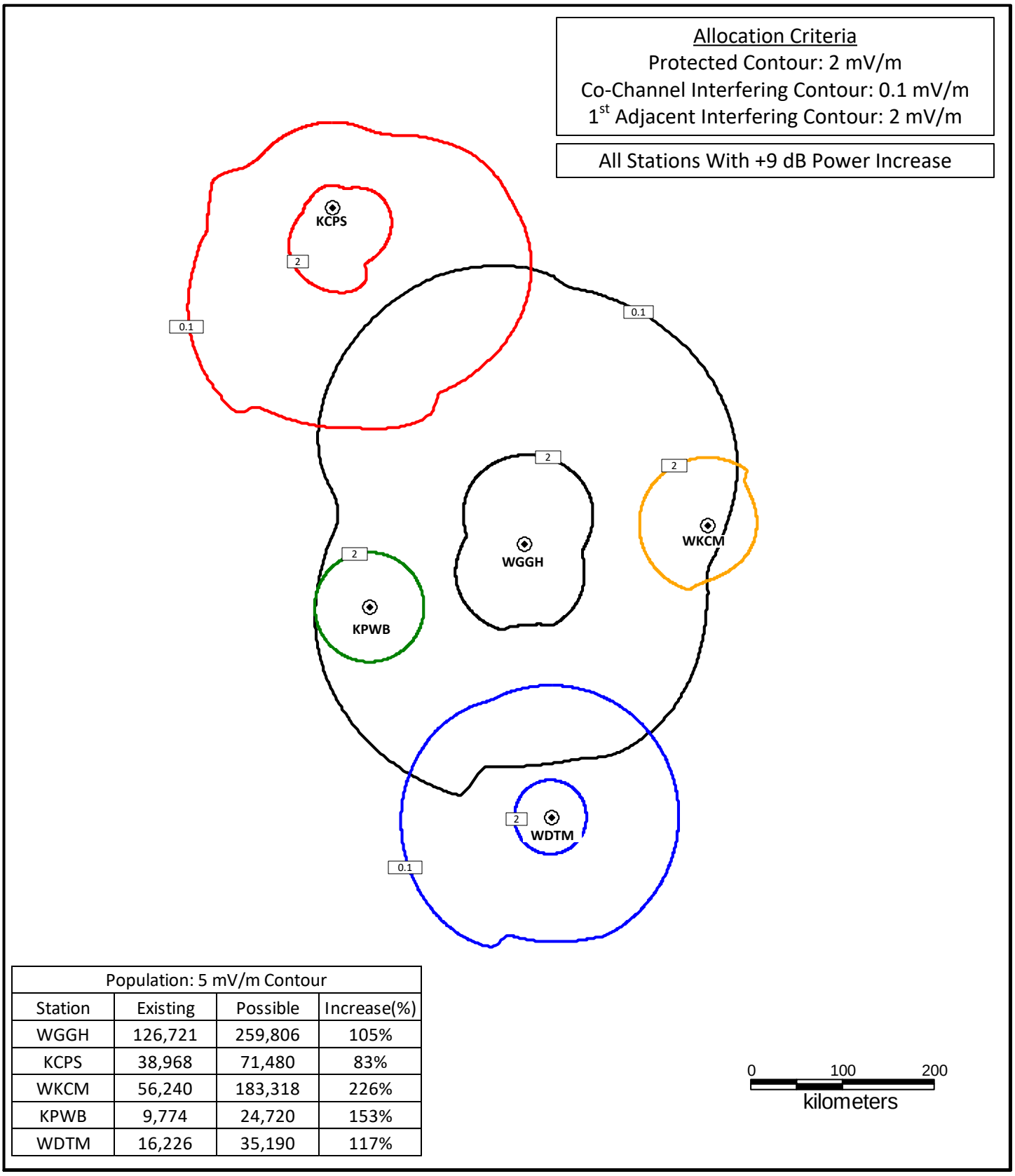


Population: 5 mV/m Contour			
Station	Existing	Possible	Increase(%)
WGGH	126,721	223,191	76%
KCPS	38,968	60,584	55%
WKCM	54,291	150,923	178%
KPWB	9,774	19,919	104%
WDTM	16,226	26,889	66%

DAYTIME ALLOCATION STUDY

dLR Proposed Allocation Criteria
1150 kHz Example

du Treil, Lundin & Rackley, Inc. Sarasota, Florida

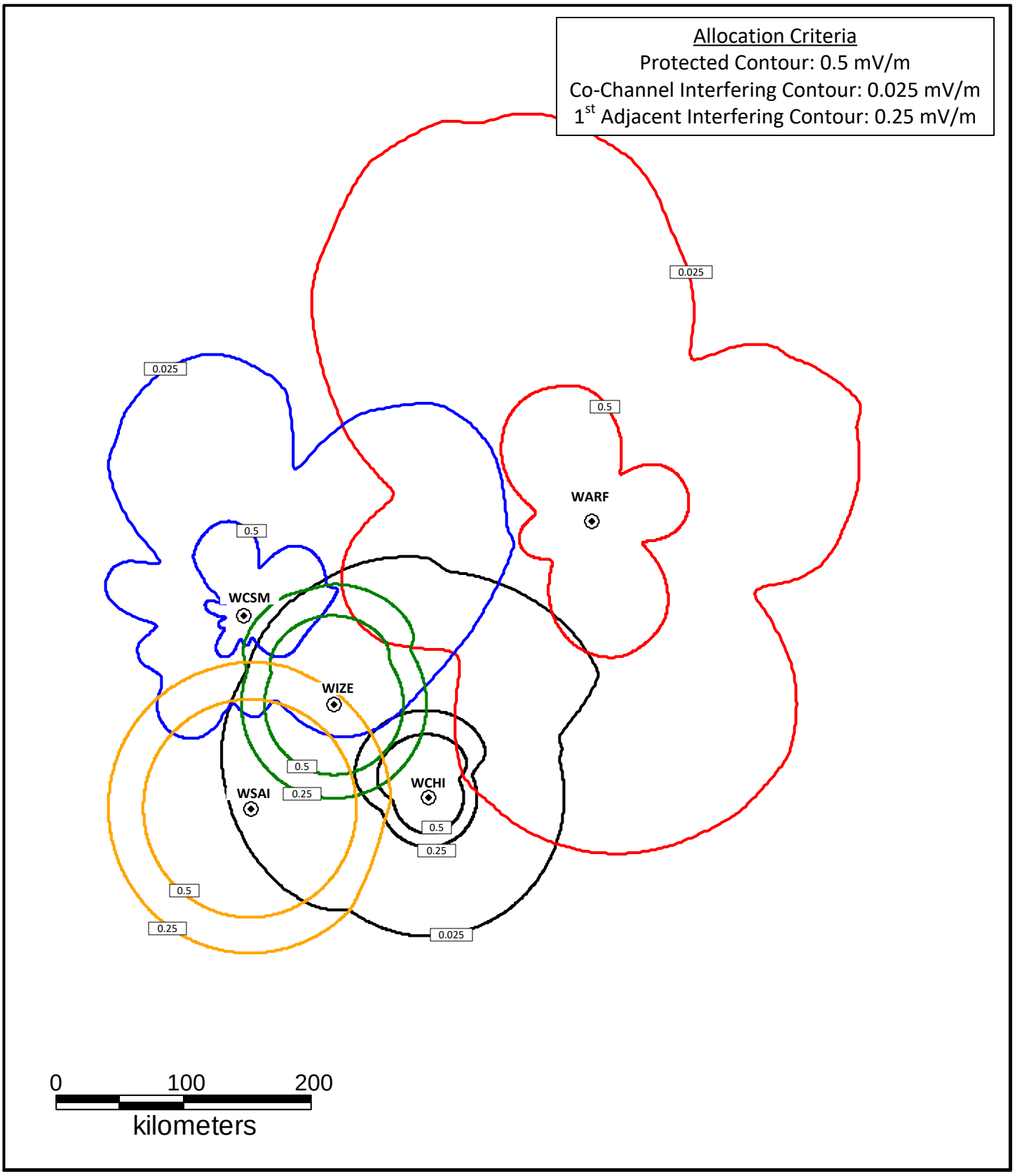


Population: 5 mV/m Contour			
Station	Existing	Possible	Increase(%)
WGGH	126,721	259,806	105%
KCPS	38,968	71,480	83%
WKCM	56,240	183,318	226%
KPWB	9,774	24,720	153%
WDTM	16,226	35,190	117%

DAYTIME ALLOCATION STUDY

FCC Proposed Allocation Criteria
1150 kHz Example

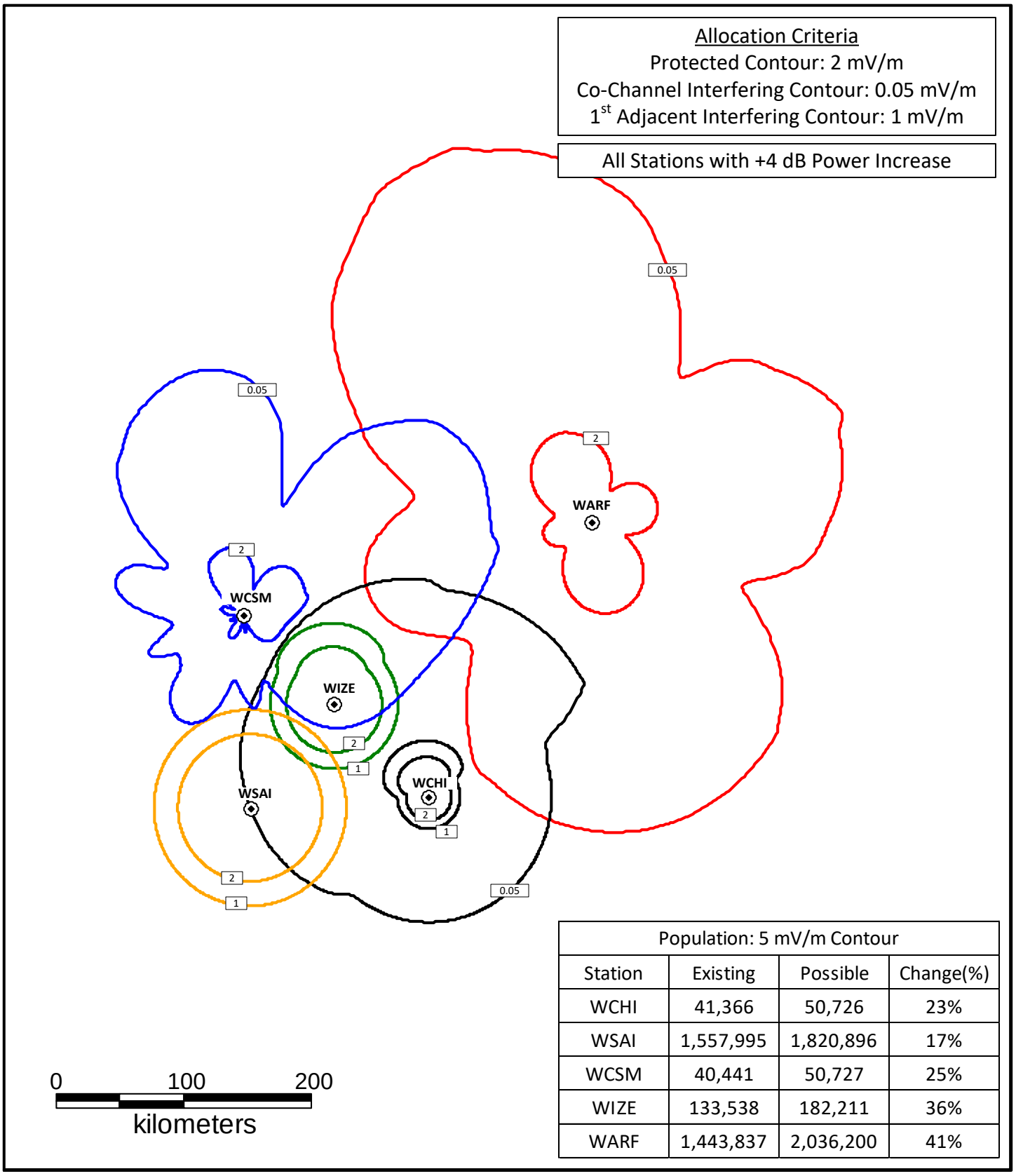
du Treil, Lundin & Rackley, Inc. Sarasota, Florida



DAYTIME ALLOCATION STUDY

Existing Allocation Criteria
1350 kHz Example

du Treil, Lundin & Rackley, Inc. Sarasota, Florida

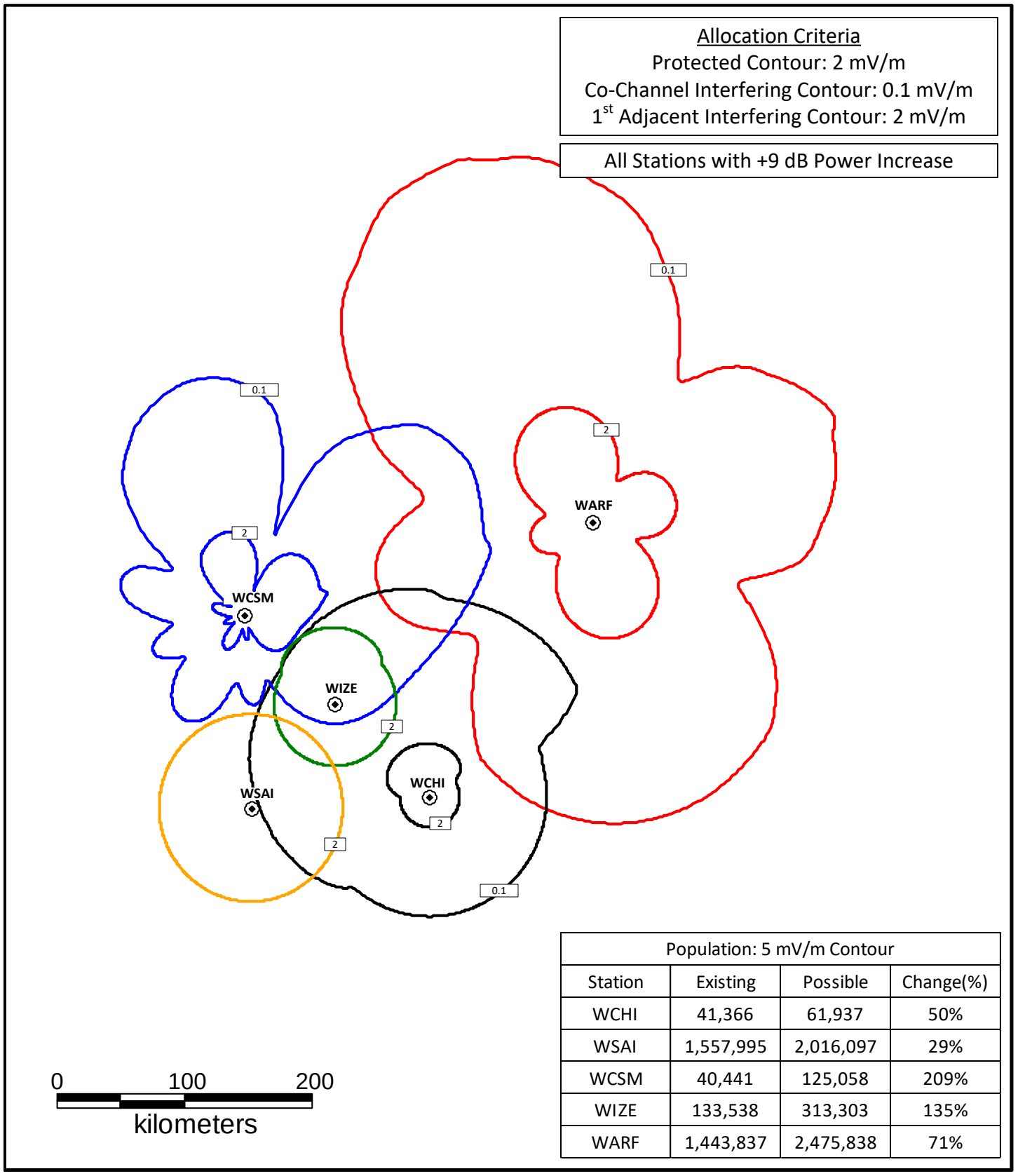


Population: 5 mV/m Contour			
Station	Existing	Possible	Change(%)
WCHI	41,366	50,726	23%
WSAI	1,557,995	1,820,896	17%
WCSM	40,441	50,727	25%
WIZE	133,538	182,211	36%
WARF	1,443,837	2,036,200	41%

DAYTIME ALLOCATION STUDY

dLR Proposed Allocation Criteria
1350 kHz Example

du Treil, Lundin & Rackley, Inc. Sarasota, Florida



Population: 5 mV/m Contour			
Station	Existing	Possible	Change(%)
WCHI	41,366	61,937	50%
WSAI	1,557,995	2,016,097	29%
WCSM	40,441	125,058	209%
WIZE	133,538	313,303	135%
WARF	1,443,837	2,475,838	71%

DAYTIME ALLOCATION STUDY

FCC Proposed Allocation Criteria
1350 kHz Example

du Treil, Lundin & Rackley, Inc. Sarasota, Florida